

Pandora Moth

Coloradia pandora Blake
Lepidoptera: Saturniidae

Schmid, J. M.; Bennett, D.; Young, R. W.; Mata, S.; Andrews, M.; Mitchell, J. 1982. Sampling larval populations of the pandora moth. Res. Note RM-421. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station; 5 p.

Objective: To develop an effective and efficient sampling method for determining larval densities of *C. pandora*.

Abstract: The pandora moth is a pest of western pines, particularly ponderosa, *Pinus ponderosa* Dougl. ex Laws, lodgepole, *P. contorta* Dougl. ex Loud., and Jeffrey pine, *P. jeffreyi* Grev. and Balf. *Coloradia pandora* generally requires two years to complete its life cycle, but some individuals may take up to 6 years. Different combinations of trees per plot, branch samples per tree, and cardinal direction per sample were evaluated for estimating larval populations on ponderosa pine. The mean number of larvae per branch did not differ among sampling schemes. Aspect had a significant effect on larval density. Each plot consisted of sampling one branch from one tree. When larval counts averaged 2-4 larvae per branch, 50 trees must be sampled to achieve an estimate within 20% of the true mean ($P = 0.05$). The results are discussed in relation to operational sampling procedures for determining larval density with known precision.

Sampling Procedure: Collect one branch from each tree. Remove branch tips 40-60 cm long from 8-10 m aboveground with a pole-pruner. Include only one sample from the north aspect in every four samples. Branch tips should be well-foliated and consist of a distinct main stem with several lateral shoots (i.e., without excessive branching). Count and record the number of larvae.

When larval counts average 2-4 larvae per branch, sample 50 trees to achieve an estimate within 20% of the true mean ($P = 0.05$). If an estimate within 10% of the mean is required, then sample 200 trees. When larval counts average less than 1.5 per branch, more than 100 trees will need to be sampled to estimate larval densities within 20% of the true mean.